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Awareness of the importance of physical activity among pediatric age group in Saudi Arabia

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ABSTRACT

Purpose: The aim of the study is to assess physical activity levels (PA), knowledge, and awareness of the importance of PA among pediatric age group in Riyadh, Saudi Arabia. *Introduction:* Physical activity plays an important role in protection against many diseases in pediatric age group, which their etiology is associated with inactivity and having sedentary lifestyle. Among the most crucial issues associated with inactivity is Obesity. Childhood Obesity is associated with a multitude of disorders such as diabetes mellitus, hypertension, hyperlipidemia, and metabolic syndrome and it is well known that physical exertion is thought to be beneficial as a protective measure against chronic diseases that are affecting the pediatric age group. *Objectives:* measuring children's awareness of the benefits of physical activity. To decide the relationship between children's awareness regarding the benefit of physical exertion and their background variables. To determine the association between children's awareness regarding the benefit of PA and the amount of PA they perform. *Methods:* A cross-section study was conducted during the period from March to May among children in Riyadh, Saudi Arabia, targeting pediatric age group using an online form.

Keywords: awareness, Physical activity, children

1. INTRODUCTION

Obesity among school aged Children is one of the major public health concerns worldwide. Obesity in children is linked to a variety of disorders, including diabetes mellitus, hypertension, hyperlipidemia, and metabolic syndrome, once known to be diseases of adults only (Aliss et al., 2020). Consequently, physical activity is thought to be a major determinant of individual and general health. Department of Health and Human Services in the United States defined physical activity as any skeletal muscle contraction results in body movement and causes an increase in consumption of energy above the basal level. There are many illustrations of physical activity and

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exercise such as jogging, bicycling, and swimming, aerobic sports for instance soccer, basketball and resistance exercises (Alsubaie & Omer, 2015).

Over the past few decades, The Kingdom of Saudi Arabia has gone through enormous economic and lifestyle change. The standard of living has improved, and mechanization can be seen in every facet of people's lives. Food consumption patterns among children and teenagers have been also altered substantially, with calorie-dense meals and sugar-sweetened beverages being more easily obtainable. Additionally, sedentary routines are increasingly common amongst Saudi citizen children and teens. Data after a restricted amount of studies, utilizing objective PA evaluation methods, indicate that most Saudi citizen children and teens do not involve in PA of adequate period and rate (Al-Hazzaa et al., 2014).

According to reports, Saudi Arabia is the world's 15th most obese country, with an obesity percentage of 33.7 percent Al-Othaimeen et al., (2007). Adolescence is a pivotal period in the human life cycle since it is at this time that routines are shaped and established. During this time, an adolescent may grow more self-reliant and begin to form personal lifestyle routines Al-Hazzaa et al., (2014). Since physical activity drops through age, it is significant that behaviors are shaped throughout childhood that will proceed to adulthood, containing inhibition of more deterioration in physical activity Corder et al., (2010). The goal of this study aimed was to figure out the degree of physical exertion among children and to assess their knowledge about it.

Literature review

Al-Hazzaa et al., (2014) found approximately 20% of females and 44% of males were active (≥ 1 hour/ day). Female were more active in private schools than public schools, but the males were more active in public schools than private schools. Most of females exercise alone for weight loss and enjoyment. Conversely, males exercise with friends for good health. Aliss et al., (2020) discovered that central obesity's prevalence was more common among teenagers compared to children (42% versus 10% in boys and 57% versus 16% in girls respectively). Physical activity ratio was greater between adolescent boys then adolescent girls. The entire metabolic equivalent scores for girls were nearly twice as high as the entire metabolic equivalent scores for boys. Further boys were calculated very active. Almost, all the studied subjects were applying more than 2h per day viewing TV and gaming, slightly higher figure of children presented sedentary routine then adolescents. Adolescent girls remained applying more time viewing TV then adolescent boys. A strong negative correlation was recorded in both sex linking body weight and period of time spent watching TV and performing desk work were revealed in either genders.

Taylor et al., (1999) conducted a correlation and regression analyses among teenagers and found that being forced to exercise would be related to participation in individual's sports more than team sports and this forcing will result in polar opposite effects on adult's physical activity. Corder et al., (2010) conducted A cross-section study was conducted among British school children aged 9-10 years and their parents. According to the findings 39% and 18% of studied boys and girls respectively were physically inactive. Approximately 80% of fathers and mothers of sedentary children incorrectly believed that their kid was adequately energetic. In entirely, 40% of sedentary kids exaggerated their level of physical exercise. The underlying factors associated with parents 'under estimation of their children's physical activity included; having female children (P=0.005), having a kid with a lower FMI (P<0.001), reporting parenting and peer support (P=0.014, P<0.014) than parents who accurately reported their children's physical activity.

Allafi et al., (2014) found that overweight and obesity's prevalence was nearly similar in both boys and girls (50.5% and 46.5% respectively). They also recorded a notable inverse relationship between vigorous activities and overweight/ obesity among boys (P<0.05). Conversely, among girls, this association was with less than moderate activities (P 0.05). Obesity was not connected with sedentary activities, time consumed viewing television, or time consumed working on a computer in either sex. Physical activity, similarly, they found that physical activity was an important predictor for BMI than eating habits among boys while the reverse was documented among girls. Thair is a need for Prospective research to investigate the role of sedentary life on adolescent obesity.

2. METHODOLOGY

A cross-section study was conducted between March and May, 2021 in the Saudi capital city of Riyadh. The questionnaire was distributed using an online form (google form) through social media apps targeting both genders pediatric participants aged from nine to nineteen years old. The reason for choosing this age group is that they will understand the questionnaire contents by reading and writing better than children younger than this age group. The number of responses that we expected to reach in this research is between 200 and 400 participants, in addition, informed consent was taken from the parents for their children to contribute in the questionnaire by having a page from the form specifically dedicated for parent's acceptance for their children to contribute in the study.

A pre-designed questionnaire conducted by the authors was used to assess the knowledge of the subjects towards the rewards of physical activity and to assess the level of this physical activity. The questionnaire includes items related to the background variables and 16 Likert scale type questions. A biostatistician was hired to analyze the data using SPSS program and the research ethics will be according to declaration of Helsinki.

Statistical analysis

Data analysis was performed using Statistical Package for the Social Sciences, SPSS 23rd version. Categorical variables were represented using frequency and percentages. Minimum, maximum, mean and standard deviations were used to present continuous variables. Independent t-test test and Pearson's correlation were used to assessment for associations. The significance threshold was set at 0.05.

Scores and level

A positive perception score toward physical activity was constructed. There were 16 questions assessing perception toward physical activity. Choosing an answer indicating a positive perception grant the participant 1 score, while choosing an answer indicating a negative perception or saying I don't know grant the participant 0 point. The minimum possible score was 0, and the greatest attainable score was 16.

Positive perception levels were also created. Those with a positive perception score less than 50% (7 or less) were described as having low positive perception level. Those with a positive perception score between 50% – 75% (8 – 12) were described as having moderate positive perception level. While those with positive perception score higher than 75% (13 and more were described as having high positive perception level.

3. RESULTS

A total of 328 participants took part in the research. Table 1 shows the sociodemographic profile of the participants. 138 (42.1%) were males and 190 (57.9%) were females. As for the age, the minimum was 9, the maximum was 19, and the mean was 15.46 $\pm$ 3.26.

Table 1 sociodemographic profile of the participants

Sociodemographic Profile of The Participants (n = 328)		
Demographical Characteristics	Number	Percentage %
Male	138	42.10
Female	190	57.90
Age	9	
Mean	15.46	
Standard Deviation	3.26	
Minimum	9	

Figure 1 displays the participant's previous education of physical activity. 272 (82.9%) reported being previously educated about the result of routine physical activity on bones health. 248 (75.6%) reported being previously educated about the results of routine physical activity on mental health. 263 (80.2%) reported being previously educated about the result of routine physical activity on decreasing anxiety. 133 (40.5%) reported being previously educated about the results of routine physical activity on decreasing the chance of cancer. Table 2 present the assessment of participant's positive perception toward physical activity. The minimum positive perception score was 1, the maximum was 16, and the mean was 11.47 $\pm$ 3.16.

Figure 2 displays the participant's level of positive perception toward physical activity. The perception level was low in 9.1%, moderate in 46.6%, and high in 44.2%). Gender and age were not crucial factors affecting the positive perception score among studied subjects (Table 3).

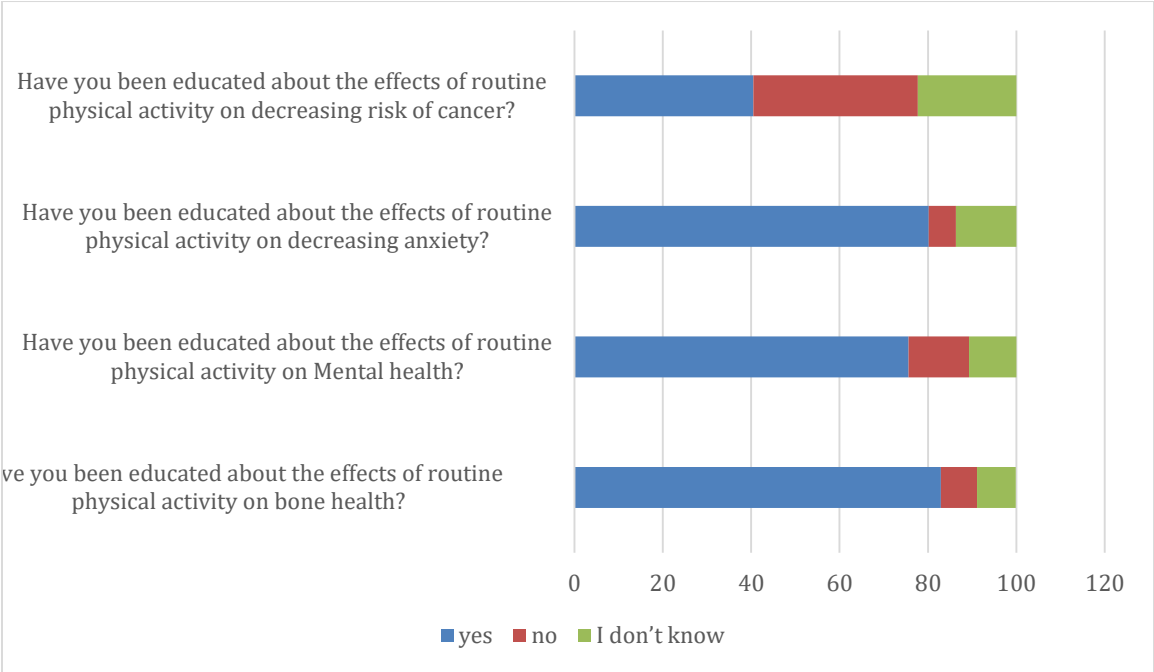

Figure 1 participant's previous education of physical activity

Table 2 Assessment of Participants Perception toward Physical Activity (n = 328)

Question	Yes		No		I don't know	
	N	%	N	%	N	%
Do you feel that physical activity relates directly to weight loss?	279	85.1	31	9.5	18	5.5
Do you feel that PA is able to Increase the chances of living longer?	189	57.6	25	7.6	114	34.8
Do you believe that PA is able to Improve your general mood to become happier?	292	89	25	1.8	30	9.1
Do you believe that PA is able to prevent chronic diseases such as (T2DM and hypertension	259	79	10	3	59	18
Do you believe that PA is able to increase muscle mass and make you look stronger)?	292	89	10	3	26	7.9
Do you believe that PA is able to Spare you from the harm of eating fast food?	186	56.7	60	18.3	82	25
Do you believe that PA enhances Concentration and memorization?	219	66.8	23	7	86	26.2
Do you believe that physical activity is related Directly to growth?	198	60.4	34	10.4	96	29.3
Do you believe that PA is directly Related to mental health?	217	66.2	27	8.2	84	25.6
Do you believe that PA is directly Related to increasing self-confidence?	222	67.7	28	8.5	78	23.8
Do you believe that PA enhances General health?	313	95.4	6	1.8	9	2.7
Do you reckon that doing using the	202	61.6	54	16.5	72	22

stairs at school or PA for 30 minutes each day						
Do you reckon that brisk walking for 30 minutes on most days is enough	271	82.6	23	7	34	10.4
Do you reckon that you need to do vigorous exercise three times per week with 20 minutes for each session to improve your health?	198	60.4	63	19.2	67	20.4
Do you reckon it is not necessary to exercise all at once blocks of 10 minutes are okay?	204	62.2	52	15.9	72	22
Do you reckon moderate exercise that increases your heart rate slightly can improve your health?	222	67.7	22	6.7	84	25.6

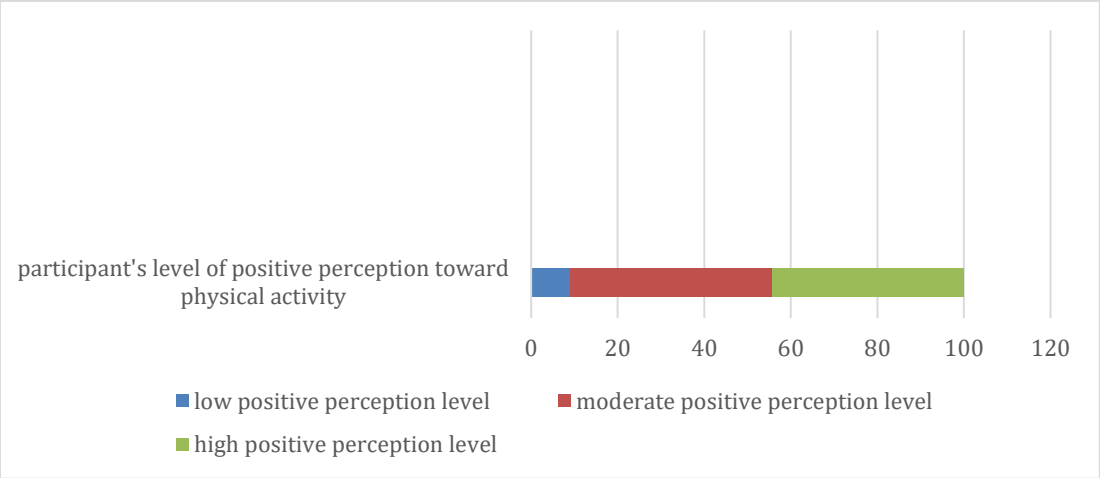

Figure 2 participant's level of positive perception toward physical activity

Table 3: Factors Associated with Positive Perception Score				
Factor		Positive Perception Score		P-Value
		Mean	Standard Deviation	
Gender	male	11.41	3.42	0.772
	female	11.52	2.97	
Age correlation with Positive Perception Score				
P-value			0.96	
Pearson's Correlation			0.00	
*Significant at level 0.05				

4. DISCUSSION

The awareness of pediatric group about the position of physical exercise in crating healthy lifestyle could be effective through preventing several diseases including II diabetes, hypertension, and hyperlipidemia. It was also perceived that the girls 'responses to our questionnaire was higher than boys which indicates more interest of girls about physical activity compared to boys. In addition the participants showed an exceptional degree of awareness about the effect of PA on different aspects of health. majority of our participants understood that exercise should be at least for thirty minutes of walking compared to a good number of participants who think that vigorous exercising for twenty minutes also a moderate number of the participants think that exercise can be divided to blocks of ten minutes, an interesting number of the participants think that going through the stairs in school for

thirty minutes is enough, based on the participants who agreed that exercise in its different forms gives an improved health outcome. A previous study documented negativity and lack of knowledge towards physical activity guidelines especially in female schools Rawlins et al., (2013).

In consistent with Kremers et al., (2008) the current study revealed no significant correlation between gender and the extent of awareness regarding physical activity (P=0.772) which means there is no strong correlation between gender and the extent of awareness compared to Another study that mentioned children with low awareness, the gender was significantly correlated with physical activity plus had a (P value of < 0.01). The current research revealed good amount of knowledge about obesity related risk factors (85.1%) which more or less was similar to Murang et al., (2020) study. It was noticed that 95.4% of the studied subjects agreed about the value of PA on general health status. However, this figure reduced to only 66.8% when the children were questioned about the function of physical activities on different aspects of health. Similarly, Murang et al., (2020) reported that most studied children (93.8%) have good knowledge about the value of physical exercise for their health.

The current study explained an exceptional level of education among studied children regarding the positive impacts of physical exercise on bone integrity (82.9%), mental health (75.6%), and decreasing anxiety (80.2%). Conversely, much lower figure (40.5%) was recorded about the consequence physical exercise has on reducing cancer risk compared to Shihab et al., (2012) (69.6%). The data displayed that 15% and 42% of the studied children respectively did not know that physical exercise could reduce body weight and increase life expectancy, which is more than what we predicted. 139 (42%) of the children participated in our study do not know that physical exercise can enhance the chances of living longer. In addition, 60.4%, 89%, and 56.7% of the participants respectively agreed that physical activity is directly related to growth and performing physical activity can improve their general mood/make them more happier and lessen the harm of fast food, while 34 (10.4%) do not agree that it's related and the rest with 198 (60.4%) agree. 222 (67.7%) of the children are educated about the important effect of physical exercise with regard to increasing their self-confidence, while 78 (23.8%) do not know if it's related.

Most of them 313 (95.4%) agreed that physical activity improves health in general, but only (66.2%) believe that it’s related to mental health. On the contrary, it was revealed that 61.6% and 82.6% of the included children believed that performing physical activity for 30 minutes daily including using the stairs and brisk walking respectively could improve their overall health., while 54 (16.5%) disagree that it is enough. 271 (82.6%) think that brisk walking daily for 30 minutes is capable of improving their overall health. 222 (67.7%) do think that moderate exercises that can increase their heart rate would improve their health.

The current study provided an insight about the extent of knowledge regarding the health benefits of physical exercise among Saudi children. Overall, the study revealed more than ninety percent (90.8%) of the studied children have high to moderate positive perception score (>50%) and 44.2% of them had a very high score (>75%). We hypothesized that children who are aware of the advantages of physical exercise would agree to get some benefits from any physical activity that would increase their heart rate or as short as 30 minutes per day.

5. CONCLUSION

In conclusion, although, the study recorded high level of knowledge regarding physical exercise’s effect on different aspects of health, a gap of knowledge was found considering its role in decreasing cancer risk and improving memory and concentration, furthermore, there is wrong perception among the participants think that doing physical activity can overcome the harm of eating fast food. We would recommend more studies regarding Correlation between the level of awareness of importance of the PA and the physical activity performance, in addition, further education about the valuable effects of physical exercise and correction of wrong assumptions regarding physical exercise effects.

Limitations of the study

One of the important limitations of this study is the self-reported questionnaire which could be not very reliable among the studied pediatric age group and some answers are provided by parents. Another limitation is the electronic data collection which may not be community representative.

Author’s contributions

RAA contributed to the idea of the study. MMA and NAA contributed to the design of the study. NIA contributed to the data collection. MMA, NIA, ASA. And FIA contributed to the interpretation of the result. NIA, MMA, NAA, ASA, and FIA contributed to drafting of the manuscript. RAA and NIA contributed to reviewing and editing the manuscript. All authors approved the final version of the manuscript.

Ethical considerations

The study was approved by the medical Ethics committee of the college of medicine at Imam Mohammad ibn Saud Islamic University, Riyadh, Saudi Arabia, (ethical approval code HAPO-01-R-001, Project No. 68-2021, session no. 43). The permission of the participants and their legal guardians were taken. The aims and objectives of the study were explained to all participants as well.

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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